



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of: Cheng et al.

CASE NO.: CL2027 US NA

APPLICATION NO.: 10/735,442

GROUP ART UNIT: UNKNOWN

FILED: DECEMBER 12, 2003

EXAMINER: UNKNOWN

FOR: INCREASING CAROTENOID PRODUCTION IN BACTERIA VIA
CHROMOSOMAL INTEGRATION

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In compliance with 37 CFR 1.97 and 1.98, Applicants bring to the attention of the U.S. Patent and Trademark Office information listed on the enclosed PTO/SB/08A and PTO/SB/08B. A copy of the information is also enclosed.

Should any fee be required in connection with the filing of this Information Disclosure Statement, please charge such fee to Deposit Account No. 04-1928 (E. I. du Pont de Nemours and Company).

Respectfully submitted,

S. NEIL FELTHAM
Attorney for Applicant(s)
Registration No. 36,506
Telephone: (302) 992-6460
Facsimile: (302) 892-7949

Dated: 3/18/04

Enclosures

I HEREBY CERTIFY THAT THIS PAPER IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO: COMMISSIONER FOR PATENT, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450, ON THIS DATE.

3/18/04
DATE

Mary Beth Pitcher
MARY BETH PITCHER

Please type a plus sign (+) inside this box

→ +

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

Approved for use through 10/31/2002. GMB 0037-003
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 2

Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	10/735,442
(use as many sheets as necessary)		Filing Date	December 12, 2003
		First Named Inventor	Cheng et al.
		Group Art Unit	Unknown
		Examiner Name	Unknown
		Attorney Docket Number	CL2027 US NA
Sheet	1	of	2

A circular stamp with the letters 'O I P E' at the top. In the center, it says 'MAR 22 2004'. Around the bottom edge, it reads 'PATENT & TRADEMARK OFFICE'. There is a small 'S' and 'Sheet 6' written in the upper right area of the stamp.

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Substitute for form 1449A/PTO

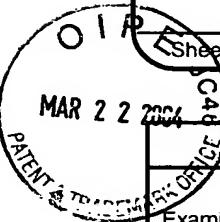
Complete if Known

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

O 1
Sheet 2 of 2

Application Number	10/735,442
Filing Date	December 12, 2003
First Named Inventor	Cheng et al.
Group Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	CL2027 US NA



OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Armstrong et al., Eubacteria Show Their True Colors: Genetics of Carotenoid Pigment Biosynthesis from Microbes to Plants, J. Bact., Vol. 176, pp. 4795-4802, 1994	
		Armstrong et al., Genetics of Eubacterial Carotenoid Biosynthesis: A Colorful Tale, Annu. Rev. Microbiol., Vol. 51, pp. 629-659, 1997	
		Sandmann, G., Genetic manipulation of carotenoids biosynthesis: strategies, problems and achievements., Trends in Plant Science, 6: pp. 14-17, 2001	
		Albrecht et al., Metabolic engineering of the terpenoid biosynthetic pathway of Escherichia coli for production of the carotenoids β-carotene and zeaxanthin, Biotechnol. Lett., Vol. 21, 791-795, 1999	
		Kim et al., Metabolic Engineering of the Nonmevalonate Isopentenyl Diphosphate Synthesis Pathway in Escherichia coli Enhances Lycopene Production, Biotech. Bioeng., 72: 408-415, 2001	
		Mathews et al., Metabolic engineering of carotenoid accumulation in Escherichia coli by modulation of the isoprenoid precursor pool with expression of deoxyxylulose phosphate synthase, Appl. Microbiol. Biotechnol., Vol. 53, pp. 396-400, 2000	
		Harker et al., Expression of prokaryotic 1-deoxy-D-xylulose-5-phosphatases in Escherichia coli increases carotenoid and ubiquinone biosynthesis, FEBS Letter., Vol. 448, pp: 115-119, 1999	
		Kajiwara et al., Expression of an exogenous isopentenyl diphosphate isomerase gene enhances isoprenoid biosynthesis in Escherichia coli, Biochem. J., Vol. 423: pp. 421-426, 1997	
		Wang et al., Engineered Isoprenoid Pathway Enhances Astaxanthin Production in Escherichia coli, Biotechnol. Prog., Vol. 62: pp. 235-241, 1999	

Examiner Signature

Date Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.